Internationale klimaforhandlinger - status efter COP-17 i Durban, Sydafrika

Olsen, Karen Holm

Publication date:
2012

UNEP RISØ CENTRE

Internationale Klimaforhandlinger

- status efter COP-17 i Durban, Sydafrika

Karen Holm Olsen

kaol@dtu.dk

Teknisk Miljøledelse, 9. februar 2012

DTU Management, Institut for Planlægning, Innovation og Ledelse

UNEP

DTU RISØ

Outline

UNEP Risø Center – an introduction

The international response to climate change:

- Awareness about climate change
- Challenges to reduce emissions
- Intergovernmental Panel on Climate Change (IPCC)
- United Nations Framework Convention on Climate Change (UNFCCC)
- Kyoto Protocol (KP)

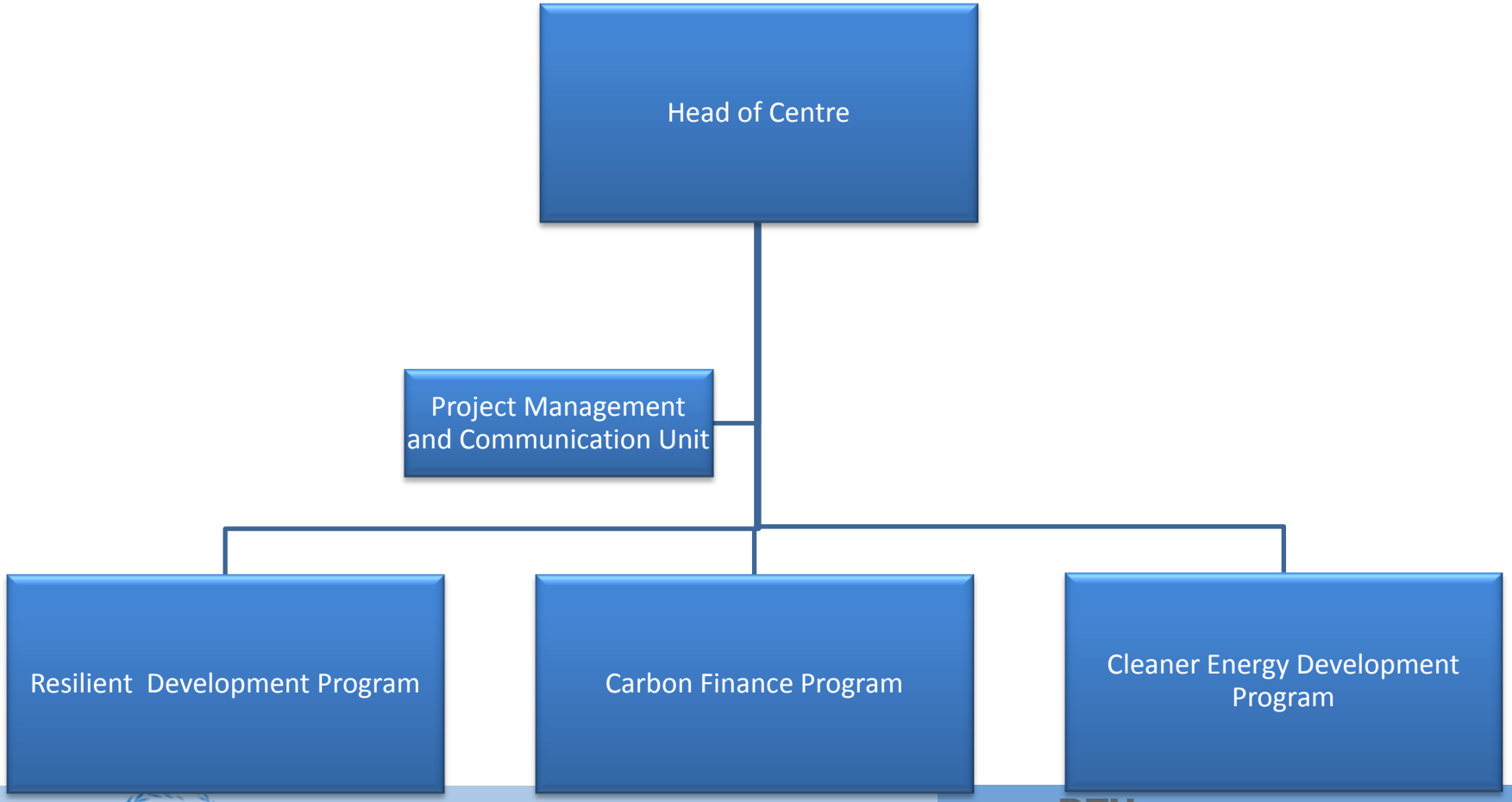
Climate Negotiations:

- The structure and agenda for negotiations - BAP
- Durban outcomes
- The role and future of carbon markets

UNEP Risø Centre – Energy, Climate and Sustainable Development

- International research team of over 35 economists and scientists.
- Based on agreement between DTU, UNEP and Danida. Located at Roskilde, Denmark since 1990.
- Mandate is to support and promote UNEP activities in the areas of energy and climate change, with a special emphasis on developing countries.

UNEP Risø structure



Energy and Carbon Finance

policy analysis and capacity development to facilitate the transition towards low carbon societies

Increasing access of medium-small developing countries to the carbon markets

Capacity building

Institutional

- Legal frameworks
- enabling environments

Individual

- Seminars
- Workshops
- Training sessions
- Regional Forums

Innovative approaches

Policy analysis on new developments:

- Pledge tracker
- REDD+
- Programmatic approaches
- Interfacing and integration of NAMA and NAPA by sector
- impact assessment - The role of capacity development in making the CDM operational in developing countries

Carbon finance and sustainable development:

- Indirect benefits of CDM
- PoA analysis – new sheet in the Pipeline
- CER price analysis
- Analysis of investments in CDM projects by sub-type, country etc

Carbon finance and clean energy:

- Large hydro problems
- Articles on hydro/wave/geothermal energy
- PoA potential and feasibility study for solar technologies in Indonesia
- CDM technology fact sheets

Analytical work

- Guidebooks on specific issues of the CDM
- Carbon Market Perspective Series
- CD4CDM Working Paper Series
- CDM data & analysis - CDM&JIPipeline
- CDM Bazaar
- Web based CDM Technology &Methodology Selection Tool

Awareness about climate change

Development of climate change awareness

1968 – The Club of Rome: 'Limits to Growth', 1972

1980-1990 - a series of scientific conferences focused on climate change. The issue emerged from science onto the international political stage, when the UNGA declared it 'a concern of mankind' in 1988

1988 - UNEP and WMO establish the IPCC

1990 - **First IPCC Assessment Report**, compiled the existing scientific evidences for global climate change.

1990 - the UN General Assembly approved the start of treaty negotiations under the UNFCCC

1992 - Rio "Earth Summit", the UNFCCC was signed by 154 states at the Rio de Janeiro Earth Summit.

March 21st 1994, the convention **entered into force**

The UNFCCC – ratified by 192 countries

Awareness of CC has grown from ignorance in the 1980s to high politics in the late 2000s, i.e. in only three decades

Environment and sustainable development – historical events

1972 – UN Conference on Human Environment, Stockholm

1972 – UNEP was founded as the result of the Stockholm Conference

1983 – UN World Commission on Environment and Development

- recognized that it was in the common interest of all nations to establish policies for sustainable development.

1987 – Brundtland Report- Our Common Future

1992 – UN Conference on Environment and Development, Rio de Janeiro

- The Rio Declaration on Environment and Development
- Agenda 21
- Principles on forests
- Convention on Biological Diversity
- Framework Convention on Climate Change

2002 – World Summit on Sustainable Development (Rio+10)

- Johannesburg Plan of Action

2012 – WSSD (Rio+20), Brazil. Focus: 1) Green Economy & 2) Inst. framework

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

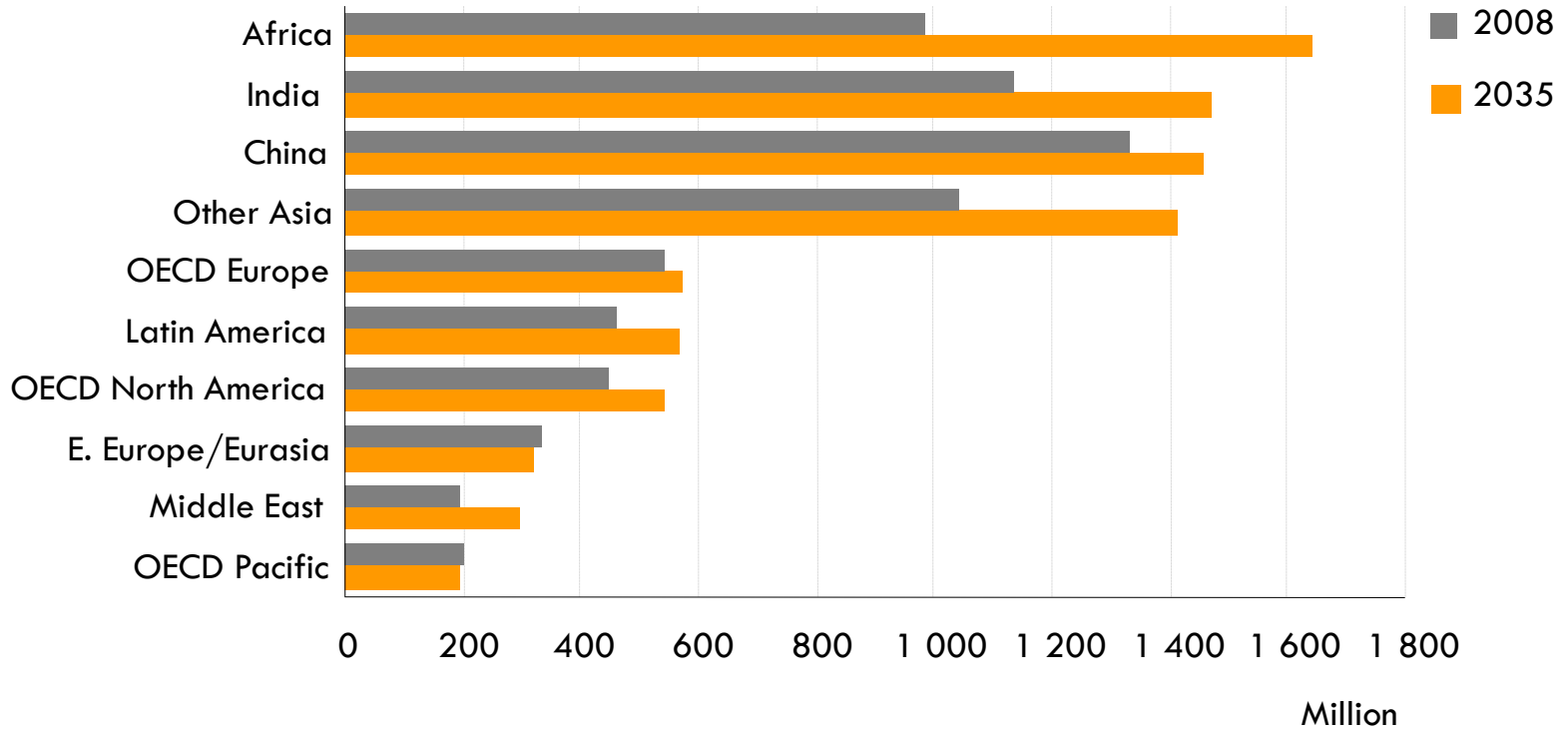
Our Common Future

Discussion:

- What is the level of awareness on climate change in your organization?
- For who and how are climate change issues relevant in your ?

Challenges to reduce GHG emissions

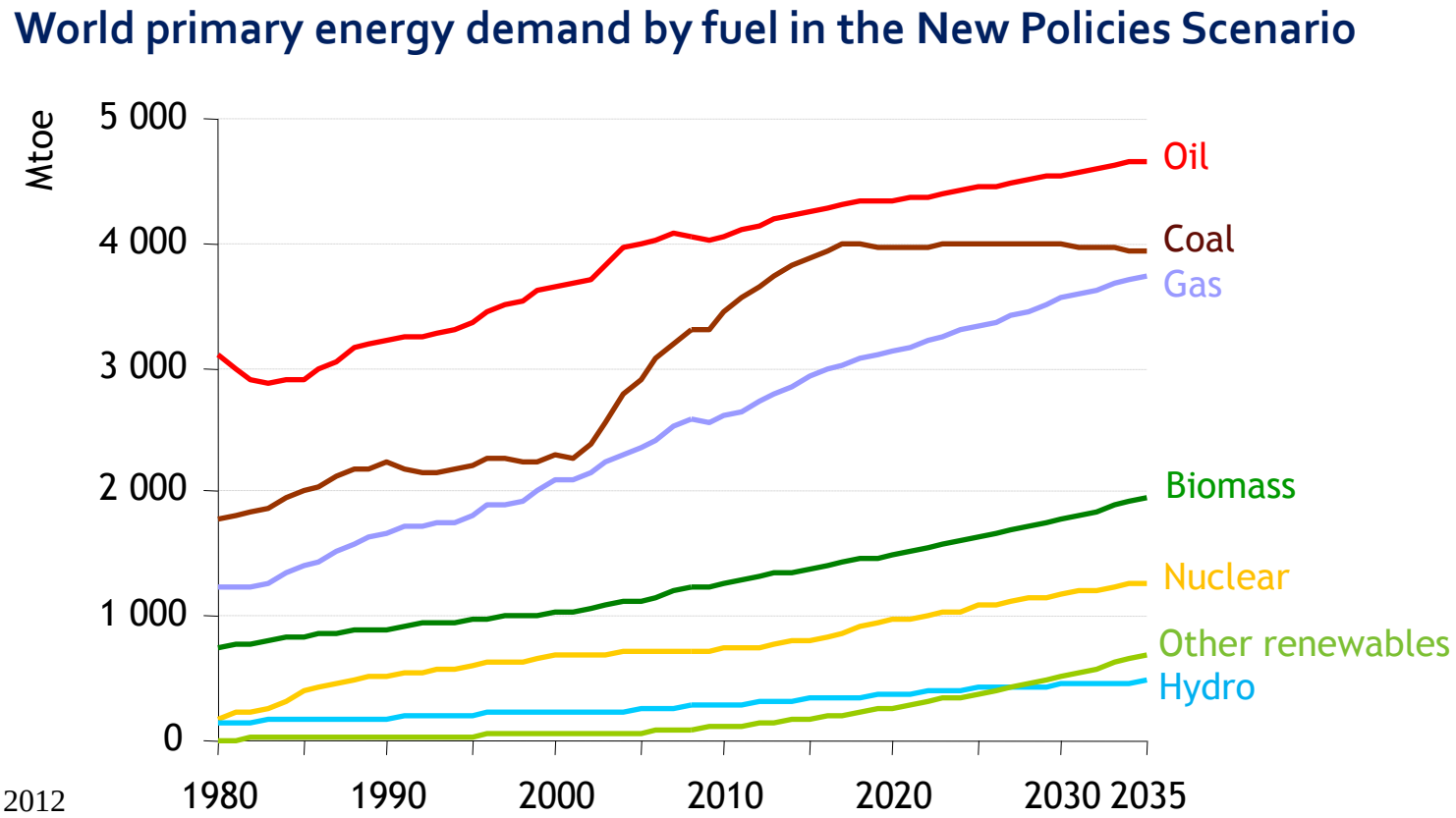
Population by major region



Global population – an important driver of energy needs – is projected to grow by 0.9% per year on average, from an estimated 6.7 billion in 2008 to 8.5 billion in 2035

Source: EIA WEO 2012

Fossil fuels remain dominant in the future

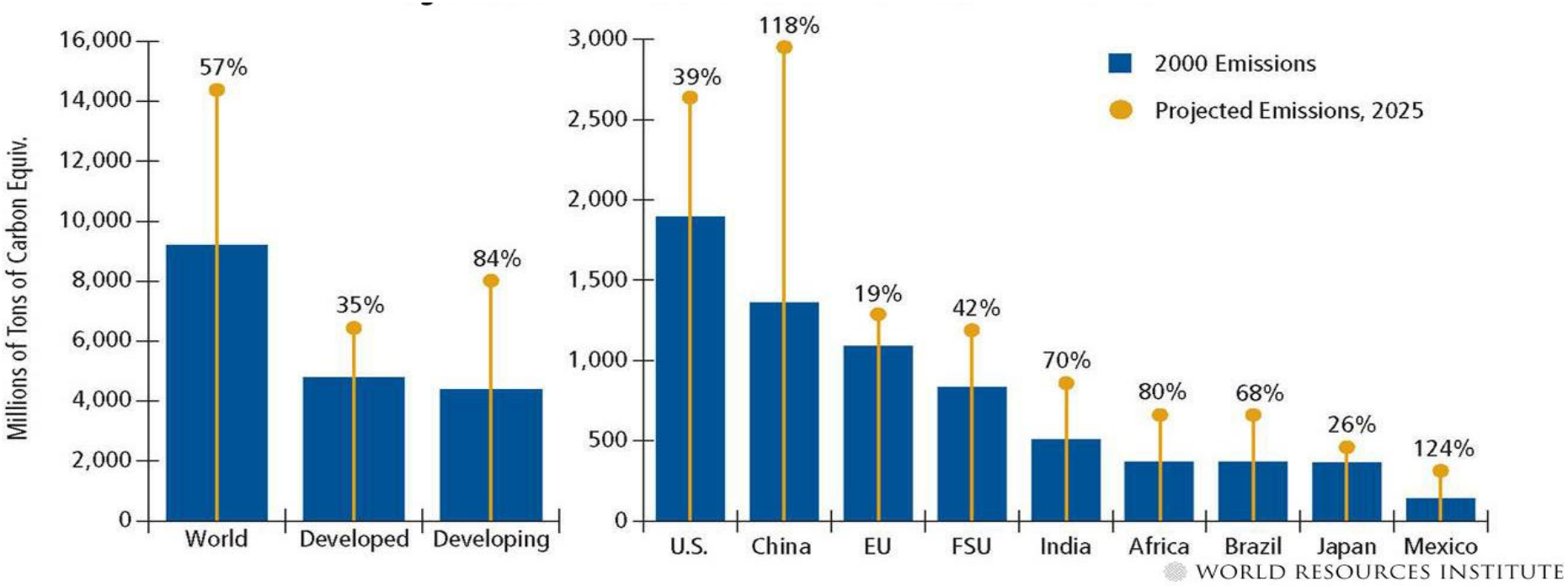


Source: EIA WEO 2012

Global primary energy demand grows by 36% between 2008 & 2035, with natural gas rising the most in absolute terms

Major Challenges

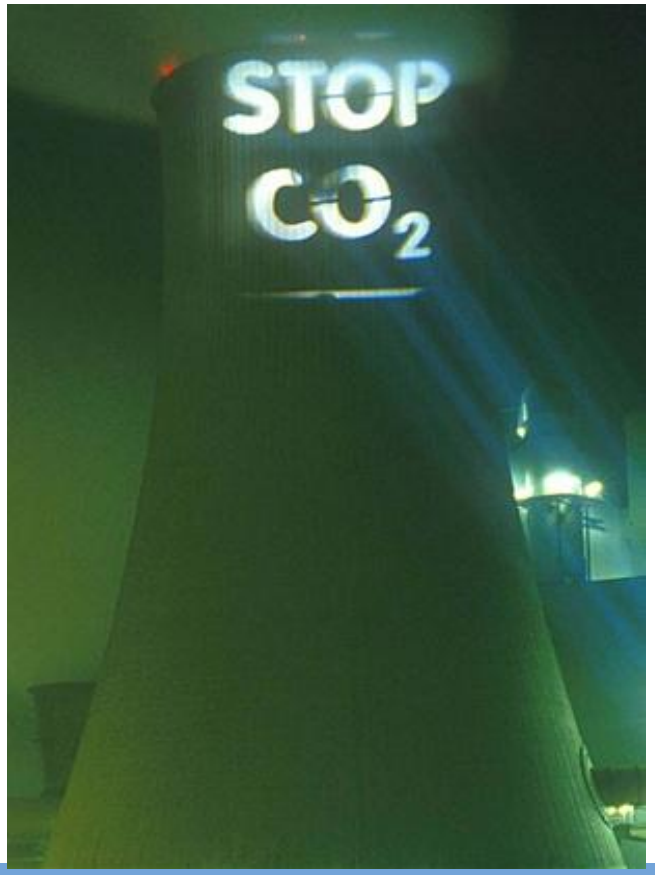
GHG Emissions Projections for 2025



- Largest emitters where not included in the 1st commitment period
- Developed and developing country emissions currently about equal

The mitigation challenge according to IPCC

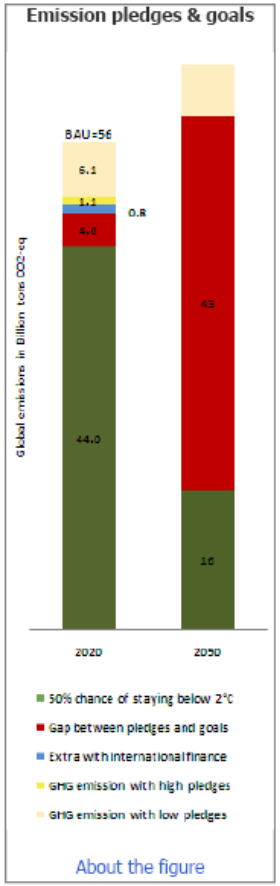
- **Without action - global CO_2 emissions will grow between 40 and 110% between 2000 and 2030**
- **To stay below 2 degrees global average warming and avoid major damages:**
  - global CO_2 emissions should start declining by 2015 and
  - be reduced with 50-85% below 2000 level by 2050



Emission reductions required for stabilising climate with fair distribution of effort

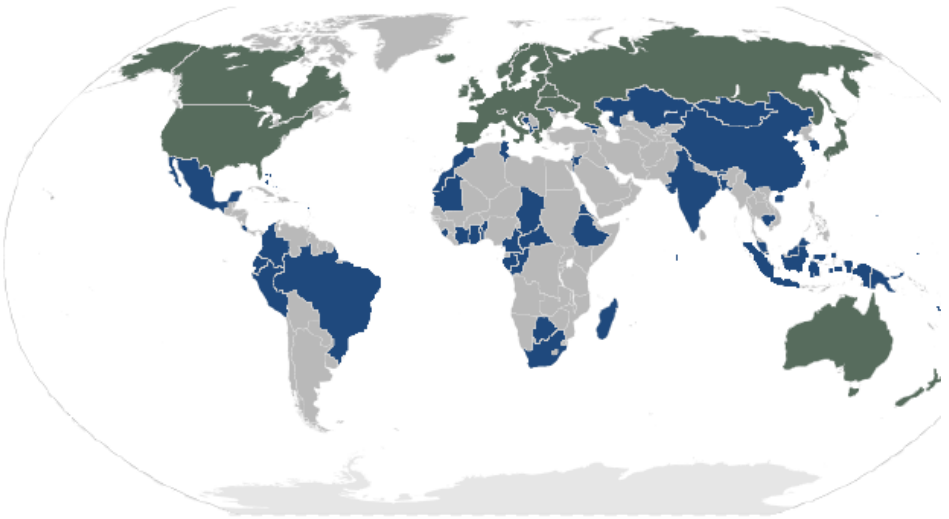
Scenario category	Region	2020	2050
A-450 ppm CO_2-eq [2]	Annex I	**–25% to –40%**	–80% to –95%
	Non-Annex I	Substantial deviation from baseline in Latin America, Middle East, East Asia ***(-15% to -30% from BAU)***	Substantial deviation from baseline in all regions
B-550 ppm CO_2-eq	Annex I	–10% to –30%	–40% to –90%
	Non-Annex I	Deviation from baseline in Latin America and Middle East, East Asia *(0 to -20% from BAU)*	Deviation from baseline in most regions, especially in Latin America and Middle East

GAP Analysis



Welcome to the UNEP Climate Pledges Site

The site presents the current country pledges and the remaining gap for reaching global climate change mitigation goals. The site and graphics will be continuously updated with new pledges, mitigation commitments and information from country parties.



Countries with pledges	Annex I countries	Non Annex I countries
IPCC GHG reduction recommendation	25% - 40 % below 1990 in 2020	15 % - 30 % below 2020 BAU in 2020
With current pledges	11% - 16%	

Site last updated on: 11/23/2010

Impacts of 2°C warming – worse than expected

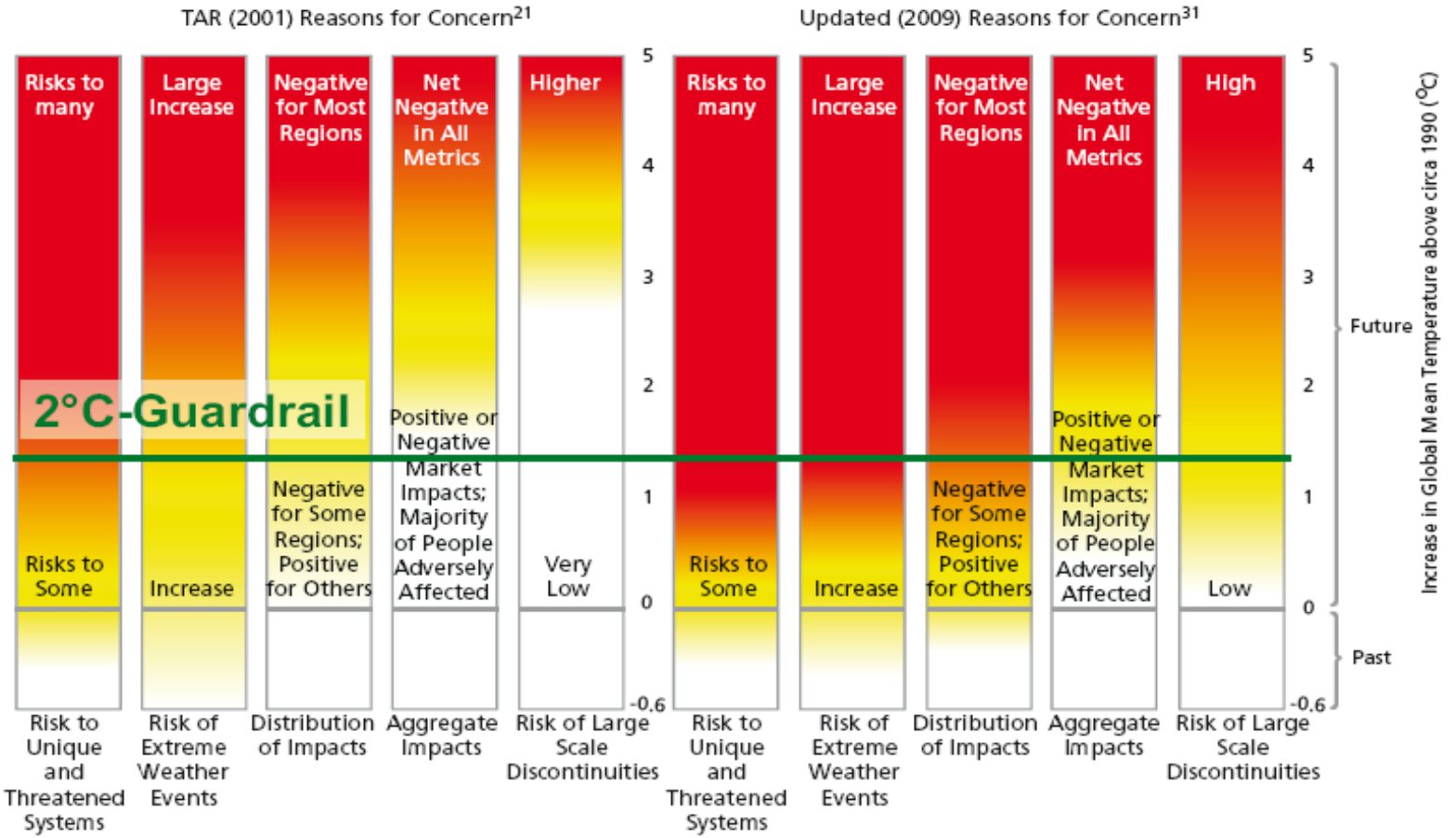


Figure 8
Diagram relating the potential impacts of climate change to the rise in global average temperature. Zero on the temperature scale corresponds approximately to 1990 average temperature, and the bottom of the temperature scale to pre-industrial average temperature. The level of risk or severity of potential impacts increases with the intensity of red colour. The 2°C guardrail is shown for reference.

UNEP RISØ CENTRE

Intergovernmental Panel on Climate Change (IPCC)

UNEP

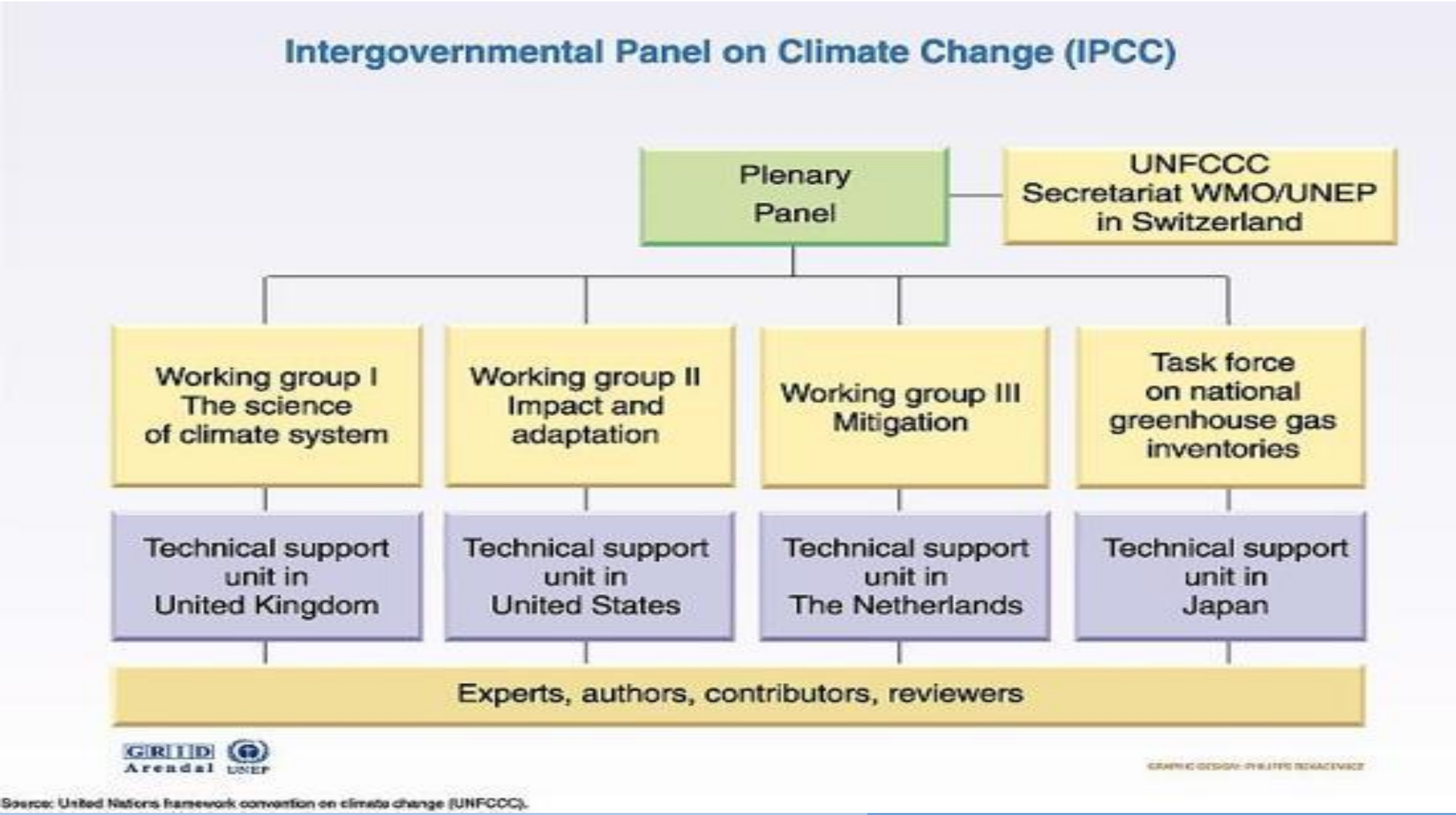
DTU RISØ

What is IPCC?

A panel of government members (192) selecting scientists from all countries to assess existing and emerging scientific literature on CC with an aim to objectively inform policymakers about:

- causes of climate change
- impacts, vulnerability and adaptation
- mitigation options

Structure of IPCC



Source: United Nations framework convention on climate change (UNFCCC).

Science and politics

- The IPCC does not carry out research itself. Rather, the IPCC conducts a massive *review* of climate change research
- The IPCC is not mandated to make policy recommendations; but rather to be 'policy relevant but not prescriptive'
- The Summary for Policy Makers of each AR is subject to political negotiations among IPCC member governments in the presence of lead authors
- A Special Committee for the Participation of Developing countries was convened 1989-1992 due to mistrust that emerging science on CC came from only a handful of industrialised countries in the early days of awareness

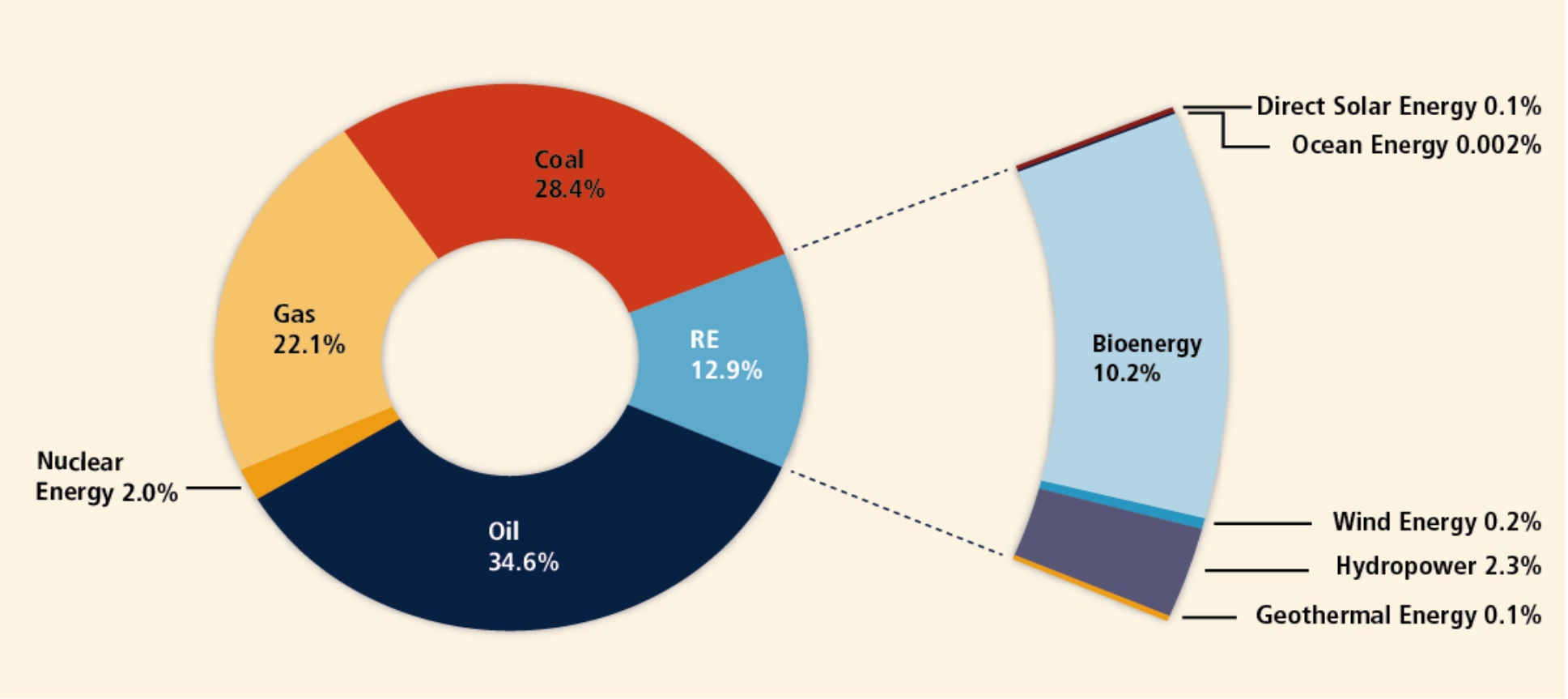
'A science-based approach' means that politicians should base their decisions on e.g. IPCC scenarios to avoid dangerous human interference with the climate system

The IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation

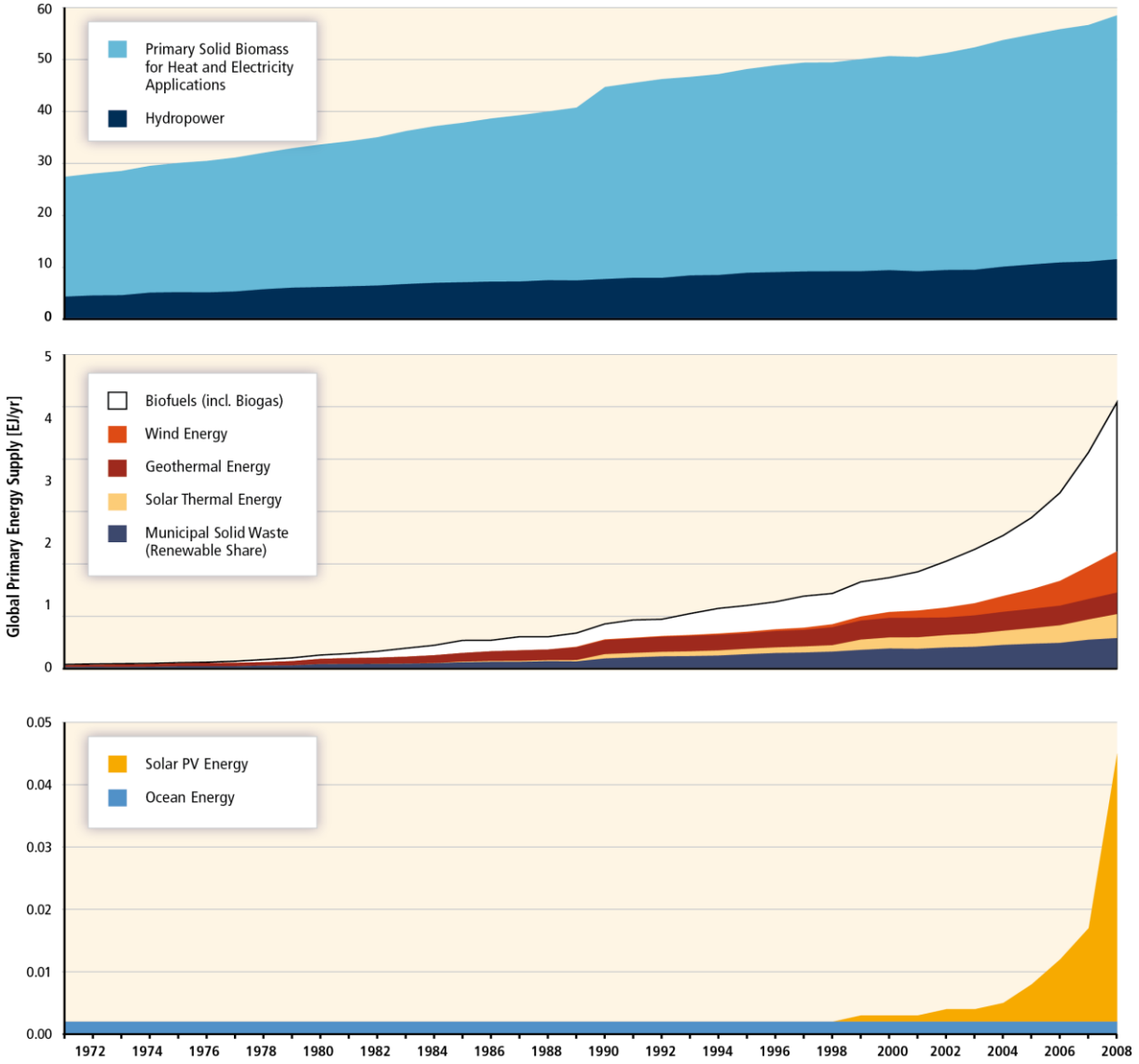
Source: http://srren.ipcc-wg3.de/ Online 15 June 2011

WMO UNEP

The current global energy system is fossil fuel dominated.



RE growth has been increasing rapidly in recent years.



140 GW of new RE power plant capacity was built in 2008-2009.

This equals 47% of all power plants built during that period.

Few, if any, fundamental technical limits exist to the integration of a majority share of RE, but advancements in several areas are needed.

- Transmission and distribution infrastructure
- Energy storage technologies
- Demand side management
- Improved forecasting of resource availability

RE can contribute to sustainable development.

- RE can accelerate access to energy, particularly for the 1.4 billion people without access to electricity and the additional 1.3 billion people using traditional biomass.
- RE deployment can reduce vulnerability to supply disruptions and market volatility.
- Low risk of severe accidents
- Environmental and health benefits

United Nations Framework Convention on Climate Change (UNFCCC)

What is UNFCCC?

UN Framework Convention on Climate Change provides an overall framework for intergovernmental efforts to address climate change.

It establishes an objective & principles, commitments for different groups of countries, and a set of institutions all of which work to enable continued talks as well as *future* actions to address global climate change.

UNFCCC Principles – Article 3

Common but differentiated responsibilities

- Industrialized countries should take a lead in combating CC
- Recognize poor countries' rights to economic development
- Full consideration for developing country needs and circumstances

Precautionary principle/approach

- to combat climate change even if there is a lack of "full scientific certainty" regarding a cause & effect relationship

Principle of cost-effectiveness

- all policies and measures that deal with climate change are to be cost-effective.

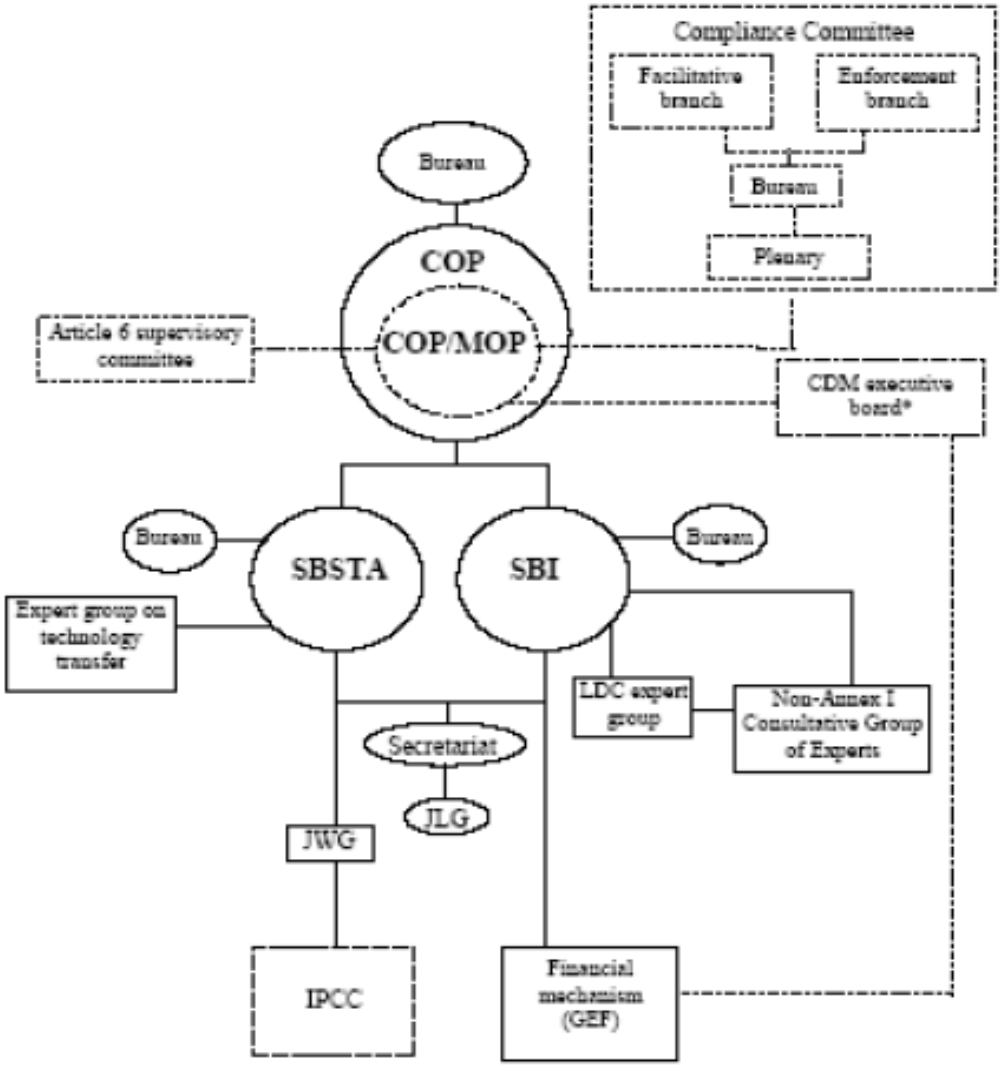
Principle of sustainable development

- Recognize "the parties have a right to, and should, promote sustainable development"

Commitments under UNFCCC – Article 4

COUNTRY GROUP	**ANNEX I**	**ANNEX II**	**NON-ANNEX I**
Members	Developed country Parties incl. economies in transition (EITs)	Developed country Parties excl. EITs	Developing countries
Mitigation	▪ Adopt policies and measures with the aim of reducing their GHG emissions to 1990 levels by 2000	▪ Provide financial resources to enable developing countries to *mitigate*	▪ All Parties take mitigation actions but no quantitative aims ▪ Least Developed Countries given special consideration
Adaptation	▪ Implement strategies of integrating adaptation in development	▪ Assist developing countries to adapt to climate change	▪ Implement strategies of integrating adaptation in development

UNFCCC Institutions



Source: UNFCCC

Kyoto Protocol

History of Kyoto Protocol

No mandatory targets under the UNFCCC

- Developed countries agreed to a non-binding aim of reducing their emissions to 1990 levels by 2000.

1995 - Berlin Mandate, 1995- called for the negotiation of binding targets for developed countries.

1997 – Kyoto Protocol adopted, Annex I countries committed to emission reduction targets of at least 5% below 1990 levels

2001 – U.S. rejected Kyoto Protocol

2005 – Kyoto Protocol entered into force, after Russia ratified the Protocol

2008-12 – First commitment period to achieve emission reduction targets

2013-17/20 – Second commitment period to achieve Copenhagen pledges

Russia, Japan and Canada + US will not be part of a second commitment period

Objectives and implementation mechanisms

Emissionsreduction targets:

- 5.2% reduction af emissions from Annex I in 2008-12 compared with 1990
- 30% reduction compared to BaU

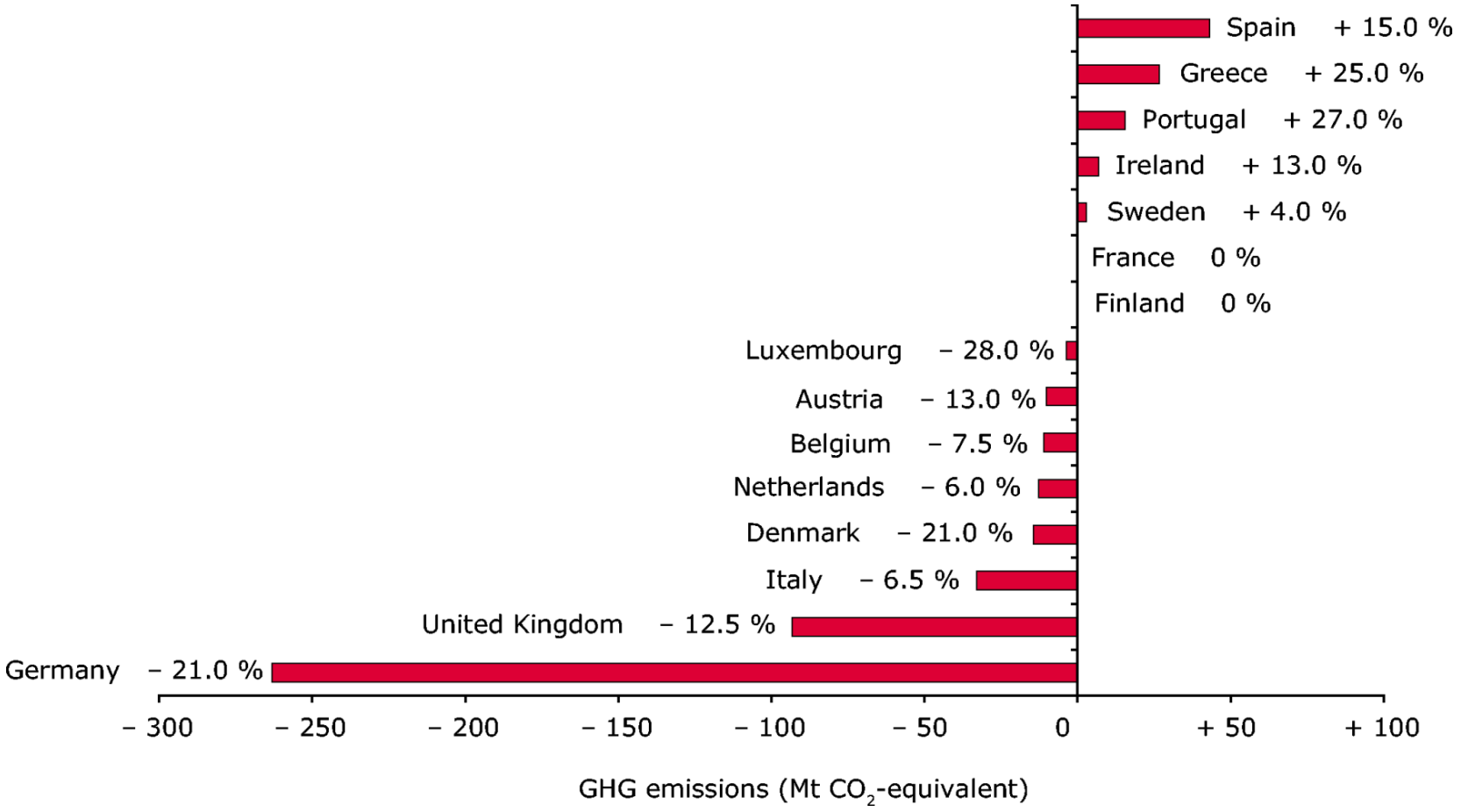
Implementation “mechanisms”

- Clean Development Mechanism (CDM)
- Joint Implementation
- Emissions trading

Emission Reduction Targets for Annex I Countries

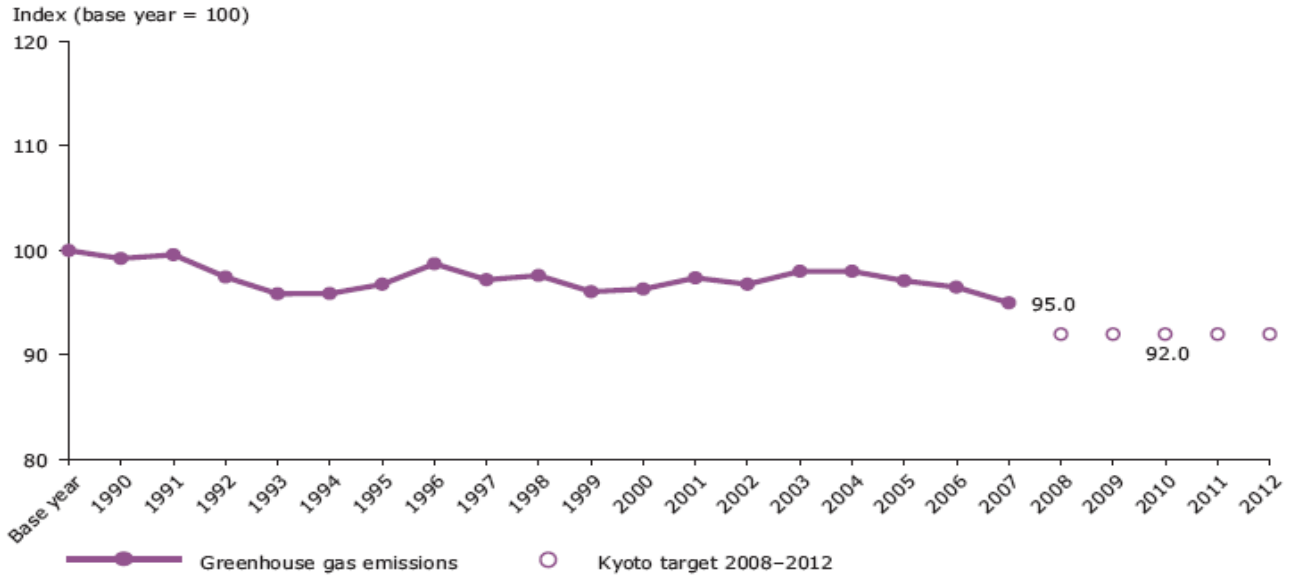
Country	Binding Target (2008-2012)
EU-15 (EU Bubble)	-8%
Bulgaria, Czech Republic, Estonia, Latvia, Liechtenstein, Lithuania, Monaco, Romania, Slovakia, Slovenia, Switzerland	-8%
USA	-7%
Canada, Hungary, Japan, Poland	-6%
Croatia	-5%
New Zealand, Russian Federation, Ukraine	0
Norway	+1%
Australia	+8%
Iceland	+10%

Emission Reduction Burden Sharing Among EU-15



Will EU meet its Kyoto Target?

Figure ES.2 EU-15 GHG emissions 1990–2007 (excluding LULUCF) compared with the target for 2008–2012



Note: GHG emission data for the EU-15 as a whole refer to domestic emissions (i.e. within its territory) and do not include emissions and removals from LULUCF or emissions from international aviation and international maritime transport.

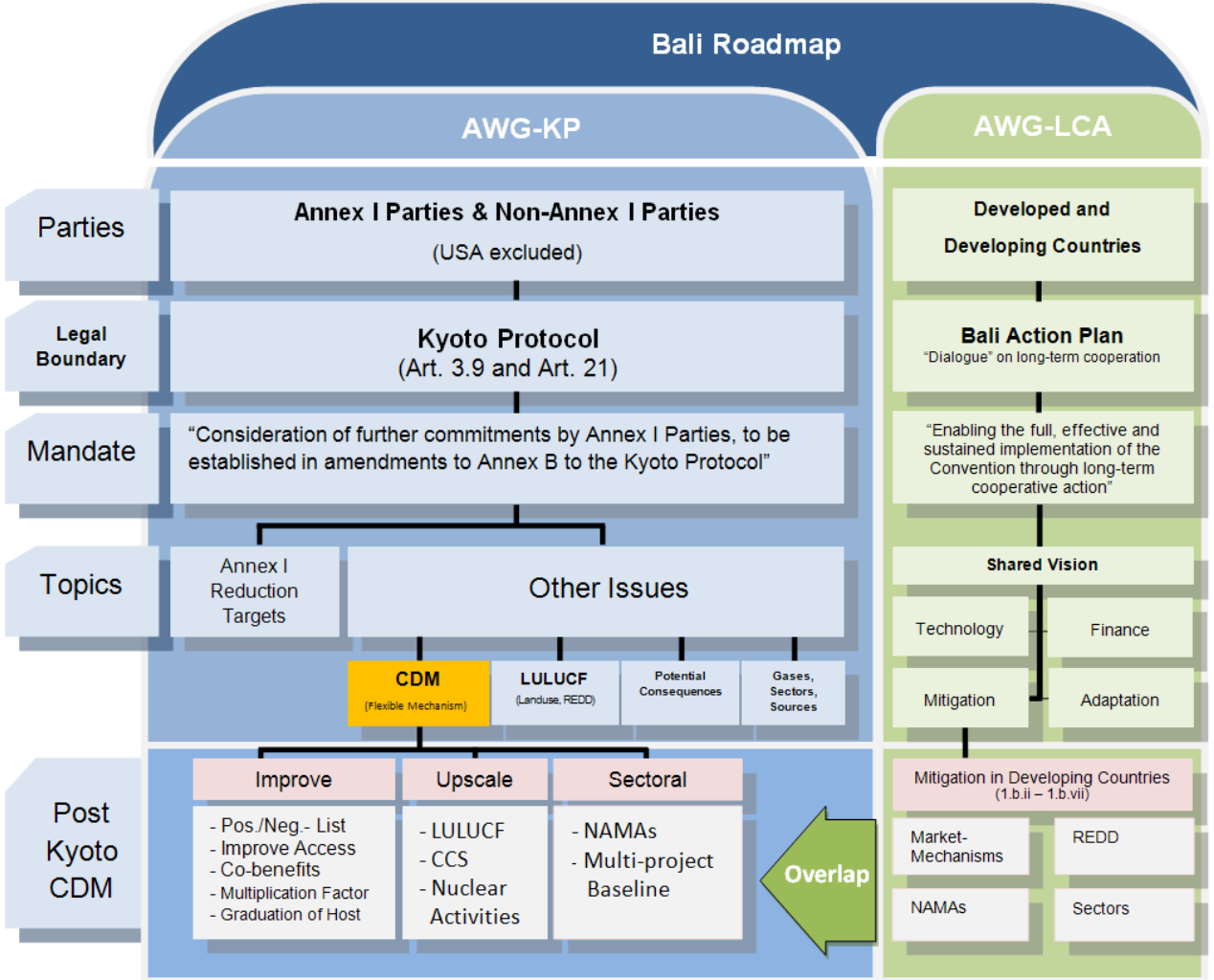
CO_2 emissions from biomass with energy recovery are reported as a Memorandum item according to the UNFCCC Guidelines and not included in national totals. In addition, no adjustments for temperature variations or electricity trade are considered. The global warming potentials are those from the 1996 revised IPCC Guidelines for National Greenhouse Gas Inventories.

Following the UNFCCC reviews of Member States' 'initial reports' during 2007 and 2008 and pursuant to Article 3, Paragraphs 7 and 8 of the Kyoto Protocol, the base-year emissions for the EU-15 have been fixed to 4 265.5 million tonnes CO_2-equivalents. The EU-15 would need to reduce greenhouse gas emissions by about 341 million tonnes, on average between 2008 and 2012, on the basis of the 2009 greenhouse gas inventory in order to meet its 8 % Kyoto target. This can be achieved through a combination of existing and planned domestic policies and measures, and using carbon sinks and Kyoto mechanisms.

Source: European Environmental Agency (EEA), 2009

Post-2012 negotiations

The BAP negotiation structure and agenda



Outcomes of COP-17 – overview

Progress made in the following areas:

- **KP:** Agreement on 2nd commitment period by 1 Jan. 2013
- **Durban Platform -** for enhanced action: breakes the firewall between A1 and non-A1 countries.
- **Finance:** - Green Climate Fund made operational
- **Adaptation**: Committe established, loss and damage, science
- **REDD:** - mechanism to be developed based on markets
- **Capacity building:** - scaled up and additional support
- **Monitoring Reporting and Verification (MRV):** Biennial Update Reports of developing countries went beyond expectations and will be subject to International Consultation and Analysis

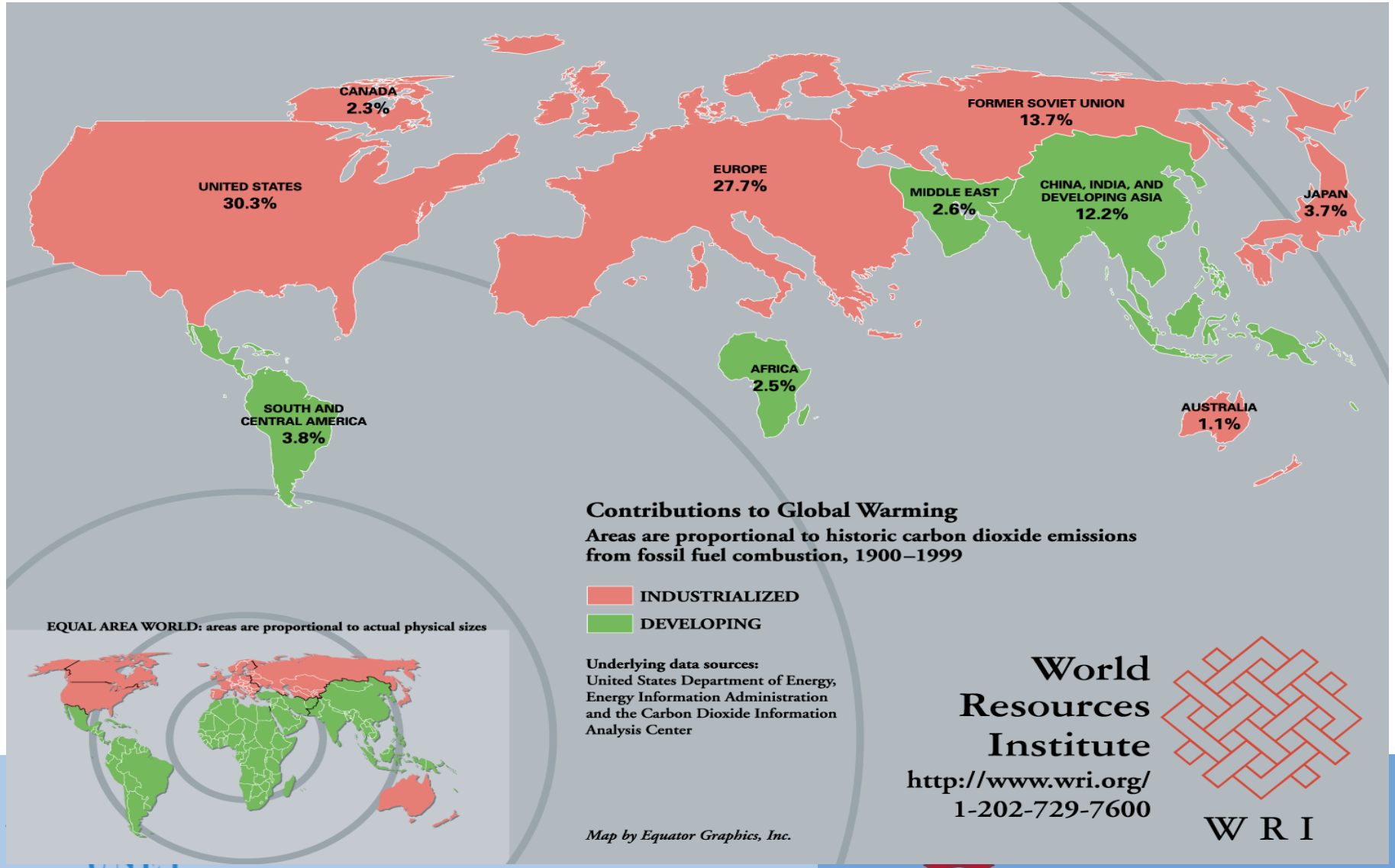
COP-17 outcomes - overview

Issues unresolved:

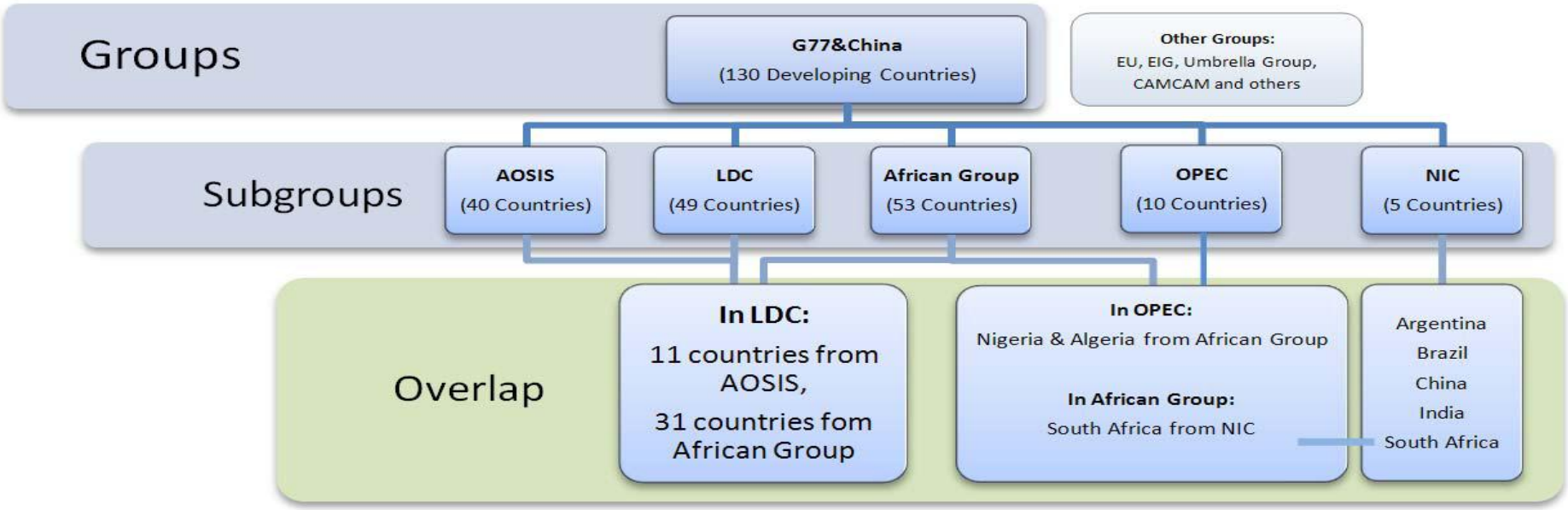
- Major challenges of KP2 remain: base year, length, pledges are in ranges, rules and procedures are unfinished for LULUCF, flexible mechanisms, surplus allowances etc.
- Legal form of Durban Platform is 'a protocol or a legal instrument or an agreed outcome with legal force under the Convention'
- Developed country pledges are made bottom up, i.e. voluntary
- Gap between pledges and science defined needs: http://www.unep.org/climatepledges/
- Sources of finance for Green Climate Fund are unclear

North-South Disparity in Climate Change Contribution

UNEP RISØ CENTRE



Negotiation groups



Carbon markets

Global carbon market

- fragmented market

Allowance market (cap and trade system)

- Emission allowances are defined by regulations at the international, national, regional or firm level - Kyoto-ET, EU-ETS, Domestic: UK, Japan, Canada, Korea. Firms: BP, Shell
- Linkage between EU ETS and project-based mechanisms

Project-based (baseline and credit system)

- Emission reductions are created and traded through a given project or activity (JI and CDM)

Voluntary market

- Individuals and companies account and trade their greenhouse gas emissions on a voluntary basis (carbon compensation and travel compensation schemes)
- Several companies expressed interest in buying project-based credits (CERs and ERUs)

Markets are likely to emerge over time as agreement widens

Carbon markets surpassed US$100 billion by the end of 2007…

Allowance markets (US$ million)

EU Emissions Trading Scheme
50,100 in 2007 alone
(more than double from previous year)

New South Wales Certificates
220

Project-based transactions (US$ million)

CDM
7,400 (30% over 2006)

JI
500

Secondary CDM
± 5,500

Voluntary market in 2007 – niche segments (US$ million)

Chicago Climate Exchange
70

Voluntary & retail
270

Source: WB State and Trends of the Carbon Market 2008, Reuters 2008

Carbon market development

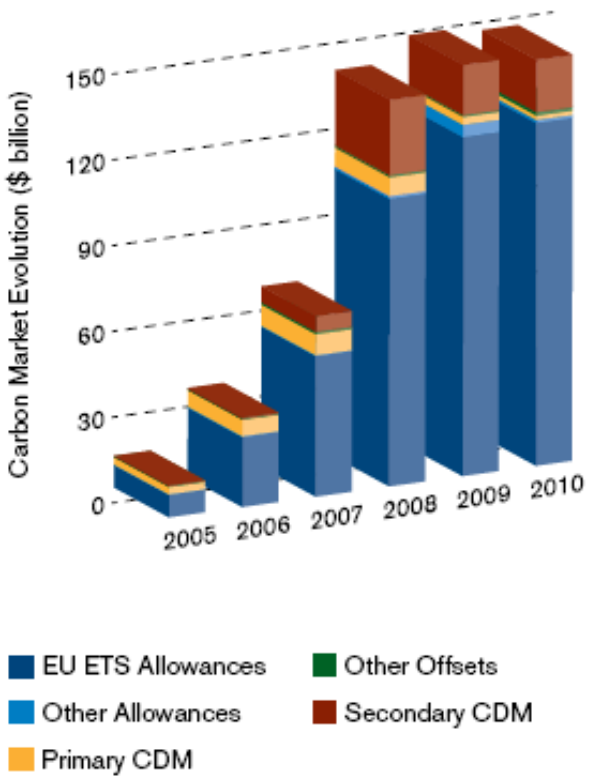


Figure 1. Carbon Market at a Glance, Market Values, 2004–10

Sources: World Bank, Thomson Reuters Point Carbon, Bloomberg New Energy Finance, and Ecosystem Marketplace

Clean Development Mechanism (CDM)

CDM Basics

CDM allows Annex I countries meet part of their emission reduction requirements for first commitment period 2008-2012 at lower costs in non-Annex I countries than could be done domestically.

Annex I countries are allowed to acquire Certified Emission Reductions (CERs) by implementing GHG mitigating CDM projects in non-Annex I countries.

Selling CERs is an additional stream of cash inflow to the project, which improves project economics.

ODA (Official Development Assistance) funds can not be used in CDM investments.

CDM projects shall support sustainable development in the host country

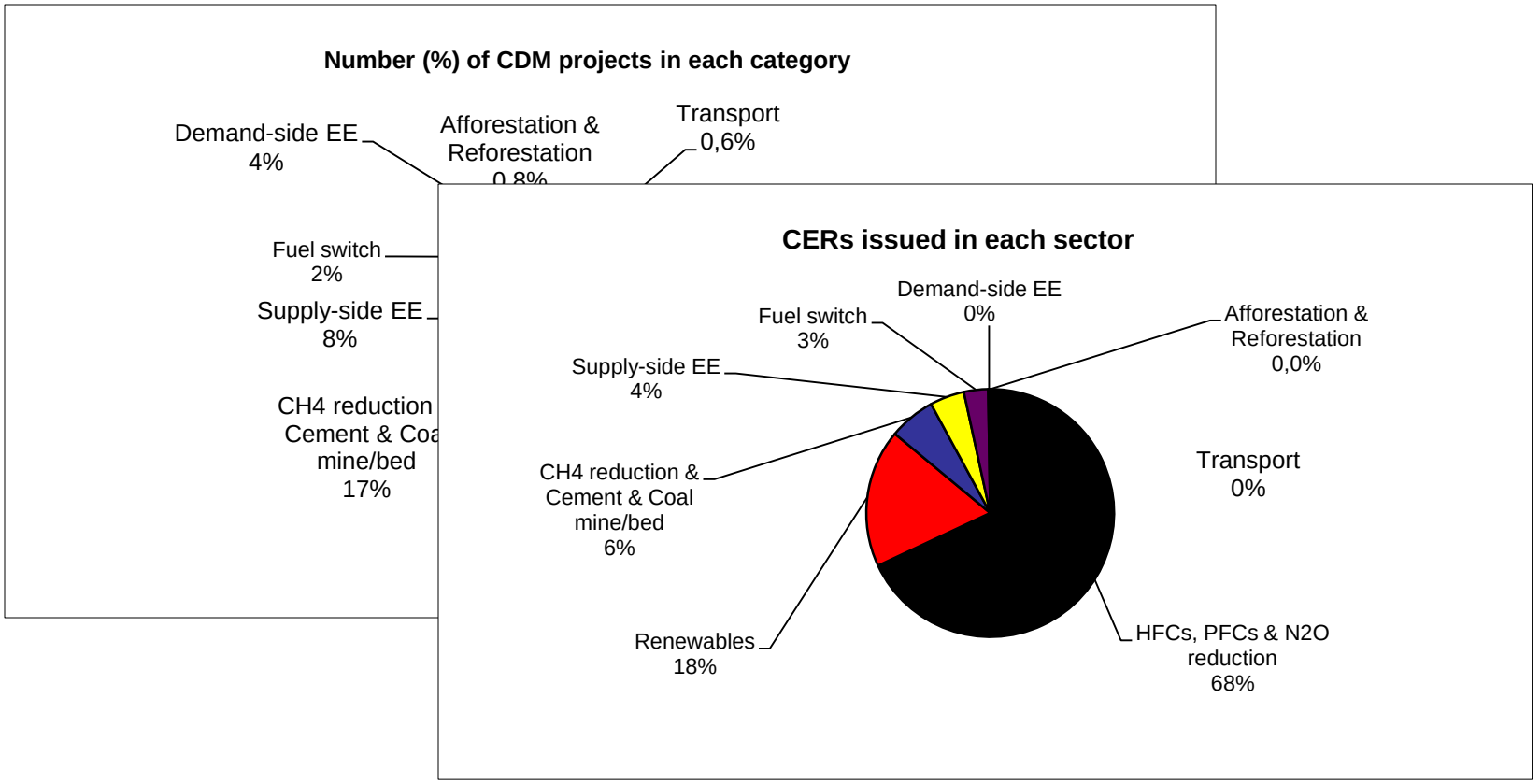
CDM is considered one of the major achievements of Kyoto

Number of CDM projects

Status of CDM projects	Number
At validation	**3794**
Request for registration	48
Request for review	35
Correction requested	3
Under review	
Total in the process of registration	**86**
Withdrawn	53
Rejected by EB	213
Validation negative by DOE	198
Validation terminated by DOE	1075
Registered, no issuance of CERs	2421
Registered. CER issued	1391
Total registered	**3812**
Total number of projects (incl. rejected & withdrawn)	9231

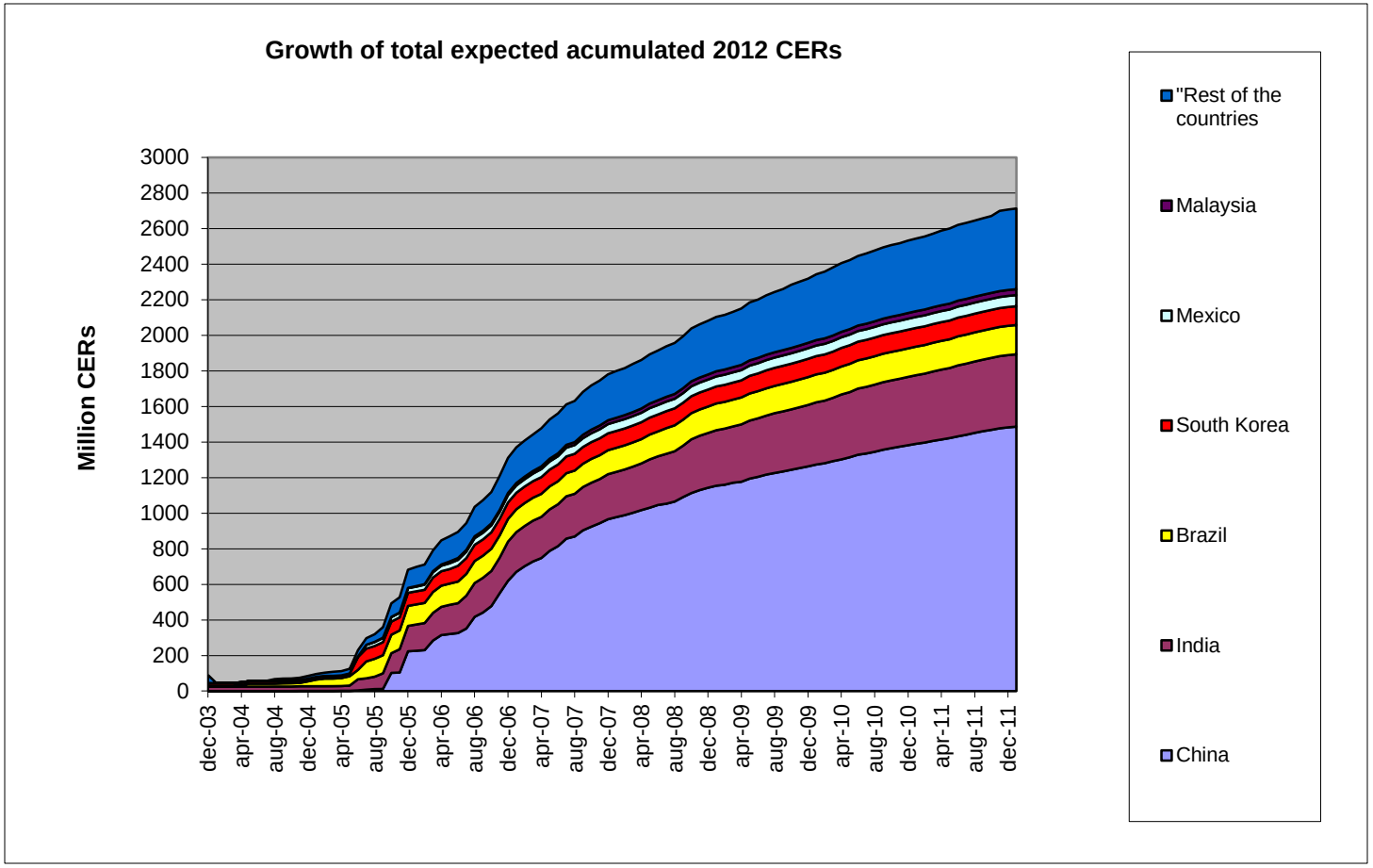
Source: UNEP Risoe Centre CDM Pipeline dated 1 February 2012

Types of CDM projects



Source: UNEP Risoe Centre CDM Pipeline dated 1 February 2012

Host countries of CDM projects



Source: UNEP Risoe Centre CDM Pipeline dated 1 July 2011

CDM project example

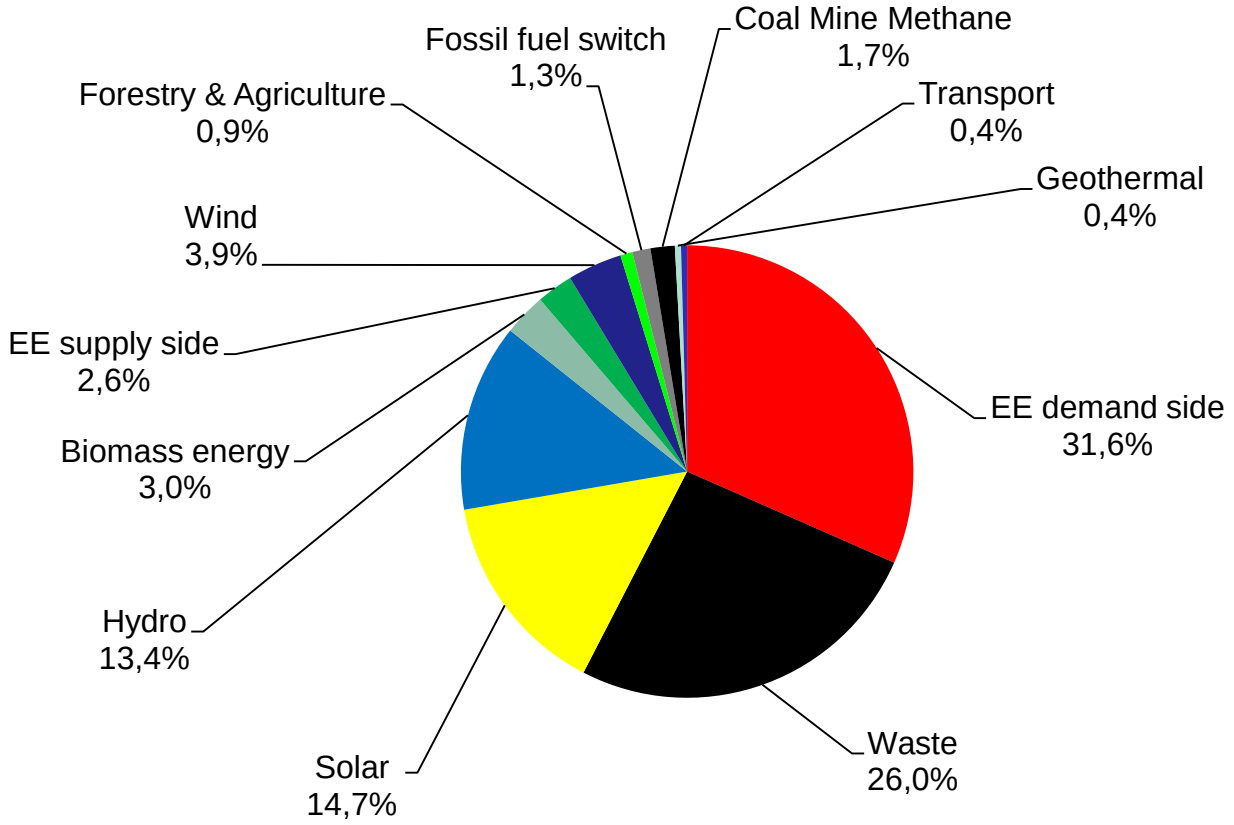
Kuyasa, Cape Town, South Africa

- low-income housing retrofit in 2309 RDP houses
- Install SWH, insulated ceilings, and CFL lighting
- first registered SA project
- first Gold Standard project in housing sectors

Proposal to upscale to a programmatic CDM project:

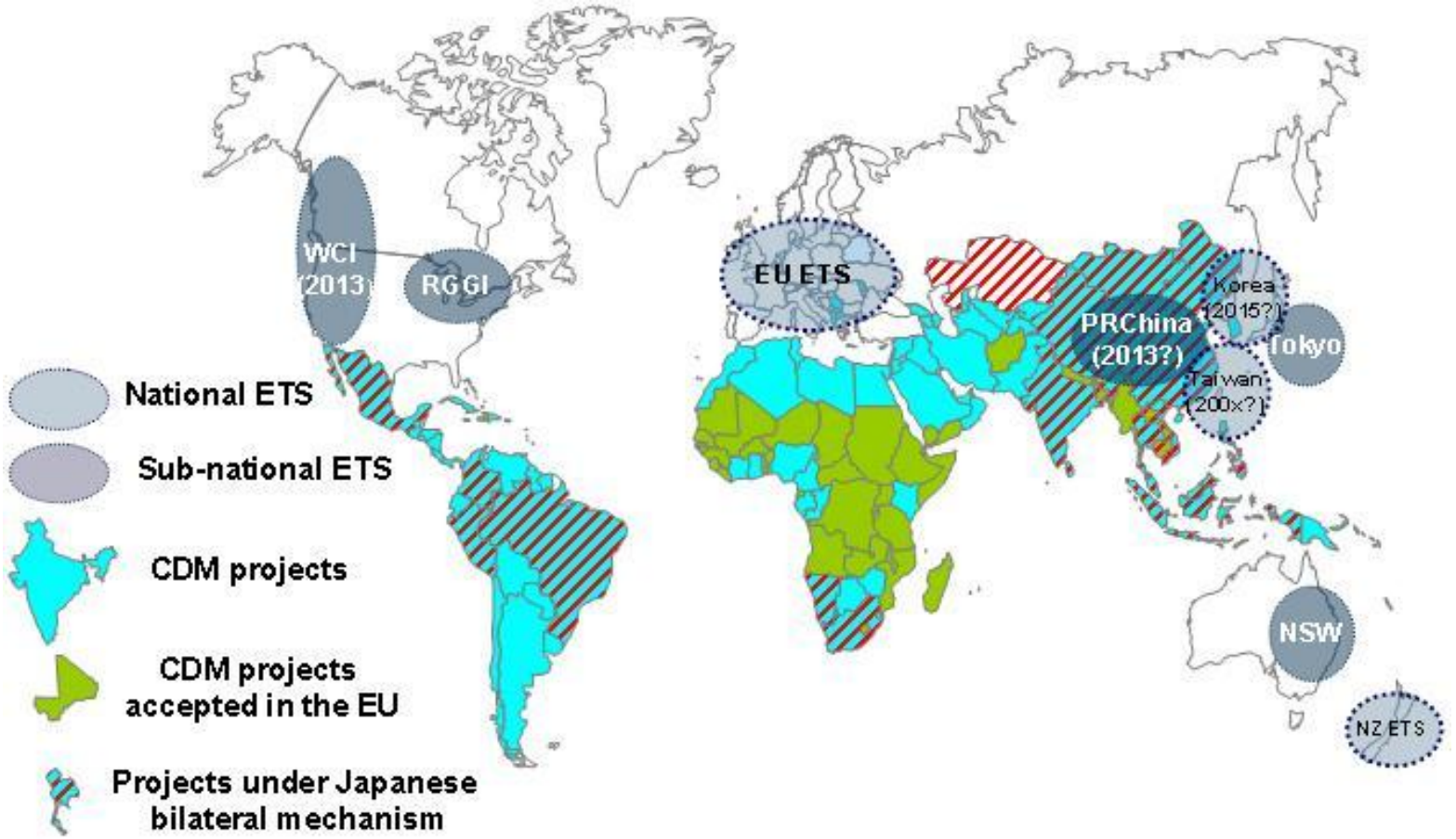
- VISION: A clearing house which enables and incentivises access to financing for clean energy services in all low income housing in South Africa
- MISSION: To establish a Facility which 1) administers a CDM programme, and 2) leverages and manages access to the additional upfront financing required for the incremental capital costs of sustainable energy interventions in low income housing

PoA distribution by type



Source: UNEP Risoe Centre CDM Pipeline dated 1 February 2012

Fragmentering af CO_2 markedet



Source: Axel Michaelowa in *Perspectives* 2011.

Thank you!

More information:

http://uneprisoe.org

http://www.acp-cd4cdm.org

http://cdmbazaar.net

http://cdmpipeline.org